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MILO/ ★ Q24 90-314146/42 ★EP-392-436-A
Folding trailer boat with retractable wheels - has rear and front parts of boat as trailer and cover respectively and wheels retracting into lateral housing

MILOSEVIC S 10.04.89-YU-000715

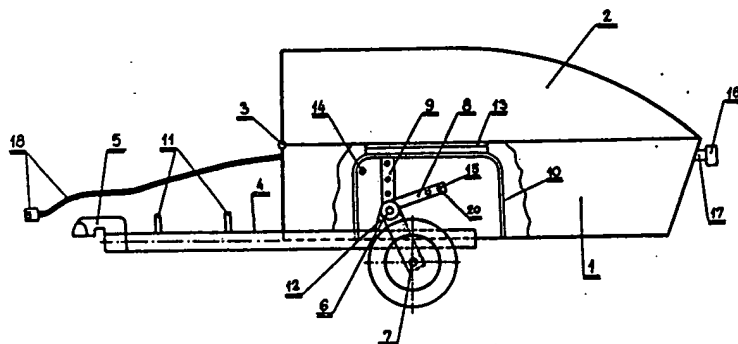
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10.04.90 as 106812 (2062) (E) GB1587183 FR2465603 US4180881
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The rear half of the boat is the lower part (1) of the trailer. The front half is the trailer cover (2). They are rotationally connected by a hinge (3). A shaft (4) is connected by nuts and bolts (11) and by connection element (12) to the tube-like bracket of a torsional axle (6).

The axle is fastened to the rear of the boat by connecting elements (9). Circlips (20) hold an adjusting lever (8) attached to wheel crank arms (7) in two strengthened holes (14,15) in lateral shaped openings (10) for retracted and extended positions respectively. The openings are closed by covers (13).

ADVANTAGE - Vehicle size and dimension minimised. Storage and transportation problems minimised. (7pp Dwg.No.1/3)
 N90-240965



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0 392 436**A1**

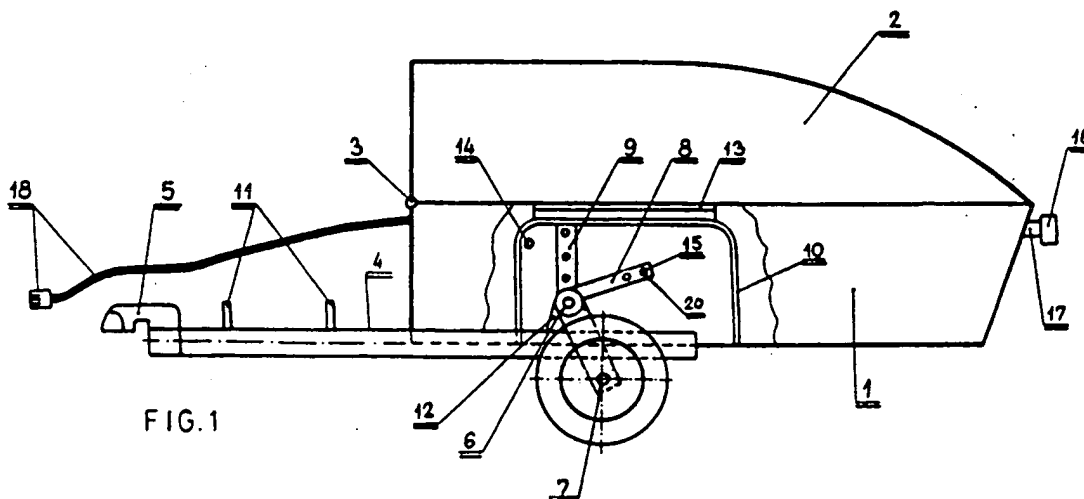
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Julius-Kreis-Strasse 33
D-8000 München 60(DE)(54) **Closed trailer-boat with retracting wheels.**

(57) **CLOSED TRAILER-BOAT WITH RETRACTING WHEELS**, according to the invention, consists of rear half of the boat (lower part of the trailer) 1 which is rotationally connected by the hinge 3 with the front part of the boat (trailer cover) 2 which is placed on shaft (4) by several screws (11) and by connecting element (12) which connects shaft (4) to the tube-like bracket of the torsional axle 6, crank arms 7 of which carrying hubs with wheels on which the wheel position adjusting levers 8 are fastened by circlips

20 on their top. Tube-like bracket of torsional axle 6 is fastened by connecting elements 9 on the rear half of the boat (lower part of the trailer) 1 which has on lateral sides shaped openings 10, which are, from the upper sides, closed by covers 13 and which have strengthened holes 14, respectively 15, on lateral sides for the wheel positions retracted/extended.

Circlips 20 hold the wheel position adjusting levers 8 in the hole 14 (retracted wheels) respectively 15 (extended wheels).

EP 0 392 436 A1**FIG.1**

Field of the Invention

Closed trailer-boat with retracting wheels belongs to the field of means of transportation, vehicles for special loads of objects transporting (B 60 P 3/10), more exactly for boats transporting i.e. to the field of trailers not comprised elsewhere (B 62 D 63/06).

Technical Problem

Because of the vessels' size and difficulties to minimize their dimensions, the problem of their out-of-water storage, appears.

The next problem arises with vessel transporting from the storage location to the launching location and generally concerning its transfer.

The closed trailer-boat with retracting wheels design, according to the invention, resolves simply and easily above mentioned problems.

Prior Art

There are certain solutions which were solving the problem of the vessel transportation i.e. its transfer from one place to another, by using special trailers, to which the vessels were placed on, fixed, and then the trailer was connected to a vehicle.

The disadvantage of such solutions consists of the need to design a special trailer for the certain vessel (for larger ships stronger constructions are required etc.). This sort of solution increases the above mentioned storage problem. That is to say that besides the vessel storeroom, a space for vessel transportation trailer storage has to be provided.

The disadvantage of such a solution is also the need for cranes to mount the vessels onto the trailers, as well as a great time wasting for mounting or dismounting the vessel onto/off the trailer, which requires an extensive preparation and a lot of work force.

There are solutions which were solving the problem of out-of-water vessel storage by means that the vessel was composed of parts, installed together before use, in order to form a unity.

The disadvantages of such solutions are for instance in sealing of parts which form a unity when the vessel is in the water.

A solution is known, described in Yugoslav patent registration P-196/79 A₁, 28.12.1981., where a smaller boat is known, used as a cover for closing a caravanning trailer which is also a boat set onto a body with wheels, dimensions of which can be altered. In folded-in position (i.e. transporting or standing position) it has small dimensions,

and due to the boat used as a cover also a suitable aerodynamic shape.

The disadvantages of this solution are in-boat small dimensions in need for special construction with wheels and shock absorbing devices, as well as with trestles for trailer hold-up on camping site.

Closed trailer-boat with retracting wheels according to this invention has solved the above mentioned technical problems and disadvantages of the above described known solutions by means of design explained in further text.

Description of the Solution to the Technical Problem

The closed trailer-boat with retracting wheels according to the invention consists of two parts which are folded-in in the way that the boat in fact represents a closed trailer. The retractable wheels installed in the lower part of the boat-trailer make possible the transporting of such a folded trailer by continental roads.

The design is shown on the drawing where:

Fig. 1 - shows the lateral view of the invention with a half-cross-section on which situation of a wheel in extended position can be seen;

Fig. 2 - shows the lateral view of the boat half-cross-section on which situation of a wheel in retracted position can be seen, while;

Fig. 3 - shows the view from above to the trailer-boat in folded-out condition.

On Fig. 1 the rear half of the boat can be seen (lower part of the trailer) 1, rotationally connected with the front part of the boat (trailer cover) 2 by means of a hinge 3. Both parts are placed on a shaft 4 with a clamp 5 attaching to a hook of the tracting vehicle.

Several connecting screws 11 are situated on the shaft 4, as well as a connecting element 12 which joints the shaft 4 with tube-like bracket of a torsional axle 6, crank arms 7 which are carrying hubs with wheels on their ends. Wheels position adjusting levers 8 are fixed to the torsional axle 6, having circlips 20 on their tops, which serve to hold the wheels in positions extended/retracted. Torsional axle tube-like bracket 6 is fixed to the rear half of the boat (lower part of the trailer) 1 with connecting elements 9. The rear half of the boat has got shaped openings 10 for wheels, closed with cover 13 from the upper side. There are strengthened holes on the lateral sides of the wheel openings 10 for the retracted position 14, and respectively for the extended position 15. Into these holes (14 and 15) the circlips on the wheel position adjusting levers are inserted.

To enable the use of the trailer-boat as a trailer, at the back of the boat rear half 1 the metal

framework brackets 17 for light signalization 16 are mounted. They can be connected to the electric installation of the tracting vehicle by means of a cable with a plug 18. On Fig. 2 the lateral view of the trailer-boat with retracted wheels is shown (circlip 20 has fixed the wheel position adjusting lever 8 into the hole 14).

The front part of the boat (trailer cover) 2 is rotated around the hinge 3, so that it leans by its whole length onto the shaft 4. By means of connecting screws 11, pulled through the boat bottom and nuts 19, it is fixed on the shaft 4.

Closed trailer-boat can be used as a boat, so that after fixing the front part of the boat (trailer cover) 2 on the shaft 4, the trailer-boat is pushed into the water. After that the covers 13 on the wheel position on the wheel openings 10 are removed, and the wheel position adjusting lever 8 is unfastened from the hole 15 (extended wheel position) and put into the hole 14, where it is fixed with circlips 20. Thus the crank arms with hubs and wheels 7 are retracted in the openings 10. After cover 13 closing, the trailer-boat is ready for use.

The Fig. 3 shows the upper view of the trailer-boat in folded-out condition, so that the exact disposition elements can be seen.

To make the trailer ready for traction, i.e. transportation, the trailer-boat has to be driven to shallow water. Then the covers 13 are removed from the wheel openings 10, circlips 20 are pulled-out, and the position adjusting levers are moved into the strengthened holes 15 and fixed with circlips 20. Now the crank arms with hubs and wheels are in lower position. The nuts 19 are screwed off and the front part of the boat (trailer cover) 2 rotated the hinge 3, so that it covers the rear half of the boat 1.

Light signalization framework 16 is mounted on the metal framework bracket 17, together with the cable and plug 18, which are connected to the electrical installation of the tracting vehicle. The clamp 5 is mounted on the shaft 4, so the trailer can be connected to the hook of the tracting vehicle.

(16) on its rear side, and by the fact that tube-like bracket of torsional axle (6) is fastened on shaft (4) by connecting element (12), while by connecting elements (9) on rear half of the boat (lower part of the trailer) (11) holds the wheel position adjusting lever (8) by circlips (20) on their lateral sides in shaped openings for wheel (10) with closed covers from the upper side (13) in strengthened holes (14), respectively (15).

2. CLOSED TRAILER-BOAT WITH RETRACTING WHEELS, according to claim 1, designated by the fact that at the ends of the torsional axle (6) on crank arms (7) with wheel hubs, the wheel position adjusting levers (8) are fastened at constant angle by circlips (20).

Claims

1. CLOSED TRAILER-BOAT WITH RETRACTING WHEELS, consisting of rear part of the boat (lower part of the trailer) 1 which is rotationally connected by hinge 3 with the front part of the boat (trailer cover) 2, designated by the fact that, on the shaft (4) the rear half of the boat (lower part of the trailer) (1) is fastened by connecting screws (11) with nuts (19) and by connecting element (12) to the tube-like bracket of torsional axle (6) together with framework brackets for the light signalization

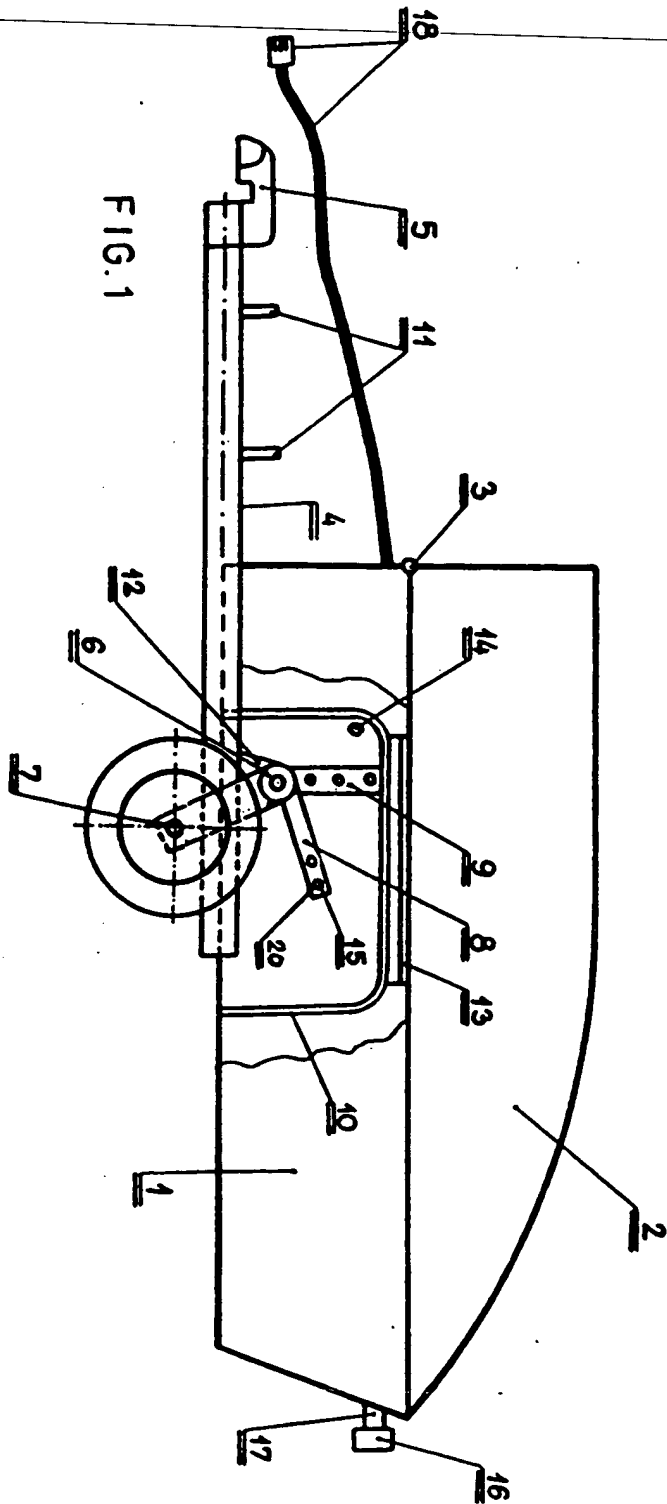
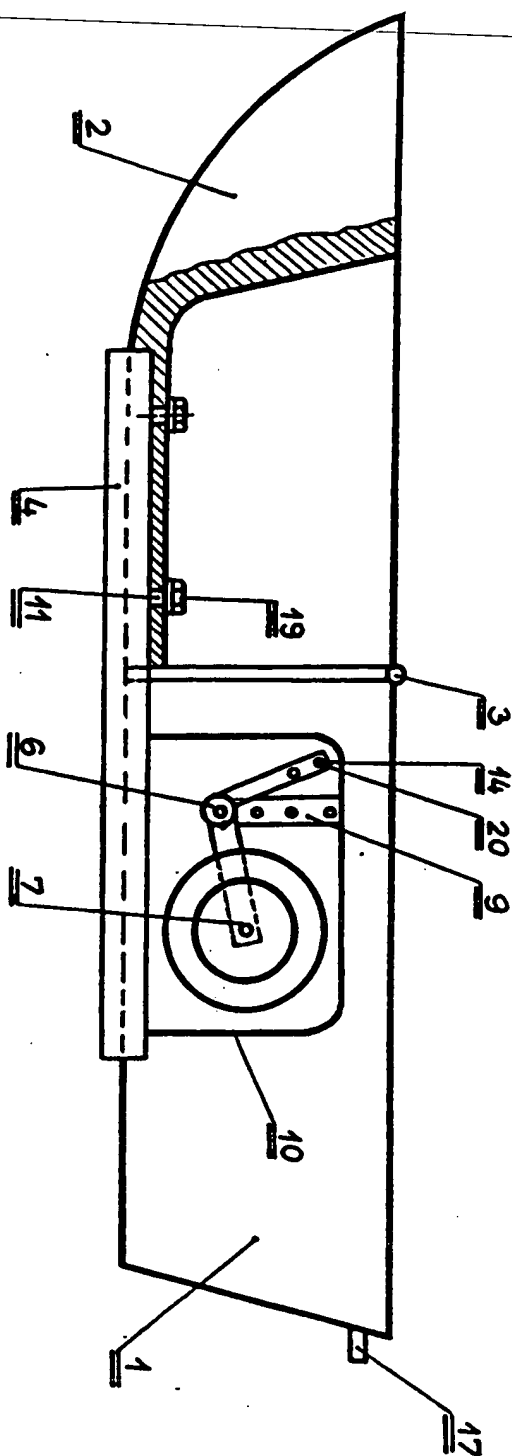
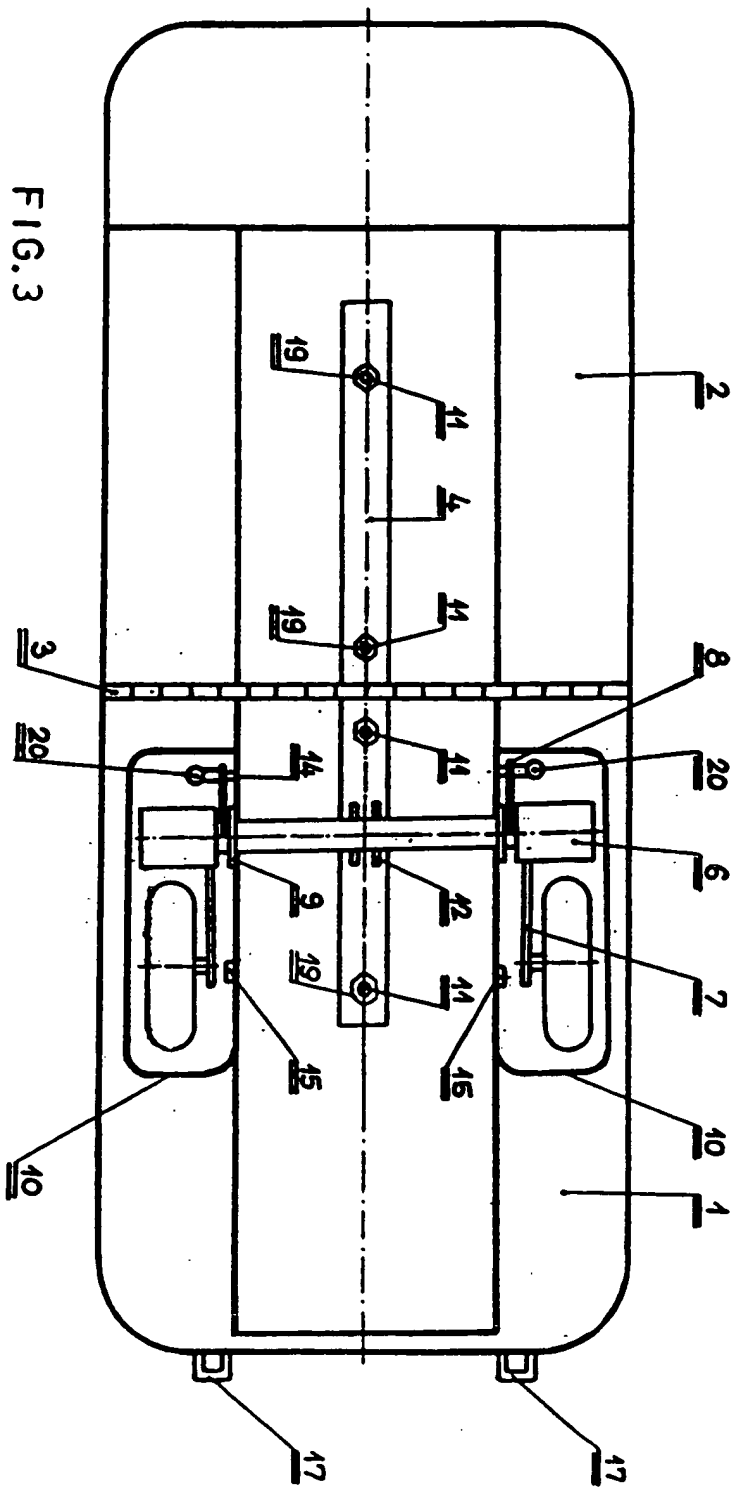


FIG. 2







European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 90 10 6812

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	GB-A-1 587 183 (STUBBS) * Figures 1-7; page 1, line 85 - page 2, line 116 *	1,2	B 63 C 13/00 B 63 B 7/04
X	FR-A-2 465 603 (PERRIQUE) * Page 3, lines 25-36; figures 1,2,5,6,7,13,14 *	1,2	
A	US-A-4 180 881 (SPERANZA) * Whole document *	1	
A	DE-A-2 630 339 (CREMER JOSEF) * Whole document *	2	
A	AU-B- 57 238 (VICTOR RAYMOND GASKELL)(1986) * Page 4, line 26 - page 6, line 11 *	1	
A	US-A-3 608 111 (R.B. HERDEN) * Column 1, lines 1-26; column 3, line 5 - column 4, line 21 *	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B 63 C B 63 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 20-07-1990	Examiner MARECHAL S.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document I : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons * : member of the same patent family, corresponding document			